Dryden Flight Research Center
Edwards, California 93523

DCP-O-011, Revision E
Expires May 14, 2014

Dryden Centerwide Procedure

Code O

Aircraft System Test Procedures Preparation and Release

CONTENTS

Electronically approved by
Assistant Director for Management Systems

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1.0 PURPOSE OF DOCUMENT

This document describes the requirements for preparation and release of Aircraft System Test Procedures for Dryden Flight Research Center (DFRC) aircraft and Unmanned Aerial Systems (UAS).

2.0 PROCEDURE SCOPE & APPLICABILITY

Scope: This procedure applies to System Test Procedures written for projects for which DFRC has flight safety responsibility, except as noted below. For the purposes of this document, the term "System Test Procedure" includes, but is not limited to, System Functional Tests (sometimes referred to as "Hangar Checks"), Servicing Procedures, Preflight and Postflight Checks, and Combined System Tests (CST) for aircraft systems, instrumentation systems, and UASs. Note that this procedure is also applicable to ground-based control components of UASs, such as Ground Control Stations (GCS) and radio frequency (RF) transmitters and receivers.

Specific procedures not covered by this procedure:

- Day-of-Flight checklists with control room oversight or informal, investigative or exploratory test procedures with engineering oversight do not require technician or inspection buy off.
- Military Technical Orders or their equivalent
- Acceptance, qualification, or other component tests

Applicability*:* This procedure applies to engineers, technicians, and specialists in the Operations (Code O), Research Engineering (Code R), and Safety (Code S) directorates.

3.0 PROCEDURE OBJECTIVES, METRICS, & TREND ANALYSIS

Objective: Ensure a consistent methodology is employed in the preparation and review of test procedures used for the functional testing and checkout of new and modified systems on DFRC-controlled aircraft

Metric: 100% of systems test procedures are prepared and reviewed by a consistent methodology

Trend analysis: Metrics will be analyzed to determine whether procedural objectives have been met.

4.0 WAIVER AUTHORITY

Waiver authority rests solely with the Director of Flight Operations (or designee) with the exception of Systems Test Procedures requiring a Systems Engineering signature. Approval of waivers for these procedures requires joint concurrence of the Director of Flight Operations and the Chief of the Research Flight Systems branch. Waivers will be submitted and approved using form DFRC 117-1. Waivers will be retained for the life of the project or program for which the procedure is applicable and will be stored with the master project documentation.

5.0 PROCEDURE

A. Systems Test Procedures generated by an outside agency or contractor and approved by the appropriate agency or contractor authority do not need formal Dryden approval signatures (except as may be required by the contract). However, they are subject to the review of the Operations Engineer, the Systems Engineer, and the Quality Assurance Office. Unless an outside agency or contractor test procedure is listed as a requirement in an approved Dryden document, its use on Dryden aircraft must be authorized by an aircraft workbook or NAMIS item. The workbook or NAMIS entry authorizing use will serve as documentation of review by DFRC. When NAMIS “goes live” it will be the official aircraft records repository and all open discrepancies in the workbooks will be transferred into NAMIS. Aircraft workbooks will continue to be used when access to NAMIS is unavailable and workbook items will be transferred into NAMIS when access is regained.

B. Systems Test Procedures generated in-house may be originated by Systems Engineers, Operations Engineers, Instrumentation Engineers, Technicians, or any designated individual.

C. Although a uniform format is not required, all Systems Test Procedures will be titled and dated or otherwise identified to assure identification as to the latest revision. The format chosen must provide step-by-step sequential testing and acceptance criteria. Except for CST procedures or those test procedures written to support a preexisting, documented buy-off requirement, a buy-off block for technician and inspection signature and/or stamp will be provided for:

1) Each item

   or

2) Each convenient block of items

   and

3) The end of the procedure (completed)

D. CST Procedures will provide a check off space for each line item, so that the test conductor or his designee may check off its completion as the test progresses.

E. Approval for Systems Test Procedures (original issue and all revisions) will be as detailed below. Note that the following are the minimum required signatures for approval of the various System Test Procedure documents. Individual projects may impose additional approval requirements at their discretion.

F. Systems Functional Test, Servicing Procedures, and Preflight and Postflight Checks will be approved by:

- Operations Engineer
- Systems Engineer *
- Quality Assurance
- Primary Technical Supervisor **

* May be omitted if Systems Engineer and Operations Engineer are the same.

** Applicability of approval by Primary Technical Supervisor will be determined by the Operations Engineer based upon hazard level. (May require more than one additional signature.)

G. Combined Systems Tests will be approved by:

- Project Manager or designee
- Operations Engineer

H. Day-of-Flight Checks will be approved by:

- Operations Engineer

I. Pen-and-ink changes may be made to Systems Test Procedures and signed off by the Systems Engineer and/or Operations Engineer. It is intended that timely updating will take place if the pen-and-ink change is to be a permanent one. Text deleted from a Systems Test Procedure will have a single red line through it, and additional or replacing text will be in red. At a minimum, the sign-off will be the initials of the Systems Engineer and/or Operations Engineer and dated as per DCP-X-007 and DCP-O-004.

CST procedure changes made in real-time need not be signed in real-time, but will have the verbal concurrence of key participants in the control room.

A flowchart of the Aircraft Systems Test Procedures Preparation and Release process is presented in Appendix A

6.0 MANAGEMENT RECORDS & RECORDS RETENTION

A. The master and any copies from which working copies are issued to the aircraft crew for compliance will be retained in a file or files, easily accessible to the using project, and under the cognizance of the appropriate Lead Technician, Systems Engineer, Instrumentation Engineer, or Operations Engineer. The Operations Engineer will maintain an updated index and file of all such procedures applicable to assigned projects.

B. At the discretion of the Operations Engineer and depending largely on the magnitude of the project and volume of test procedures, an indexed central library may be set up at some convenient location and administered by the Operations Engineer.

C. Records are preserved, maintained for the life of the project plus five years, and disposed of in accordance with NPR 1441.1, NASA Records Retention Schedules, and DCP-F-603, Records Management.

7.0 RELEVANT DOCUMENTS

7.1 Informational Documents

DCP-O-001	Aircraft Maintenance and Safety Manual
DOP-O-019	Aircraft Maintenance Standard Operating Procedure
DOP-R-301	Flight System Development Process

8.0 ACRONYMS & DEFINITIONS

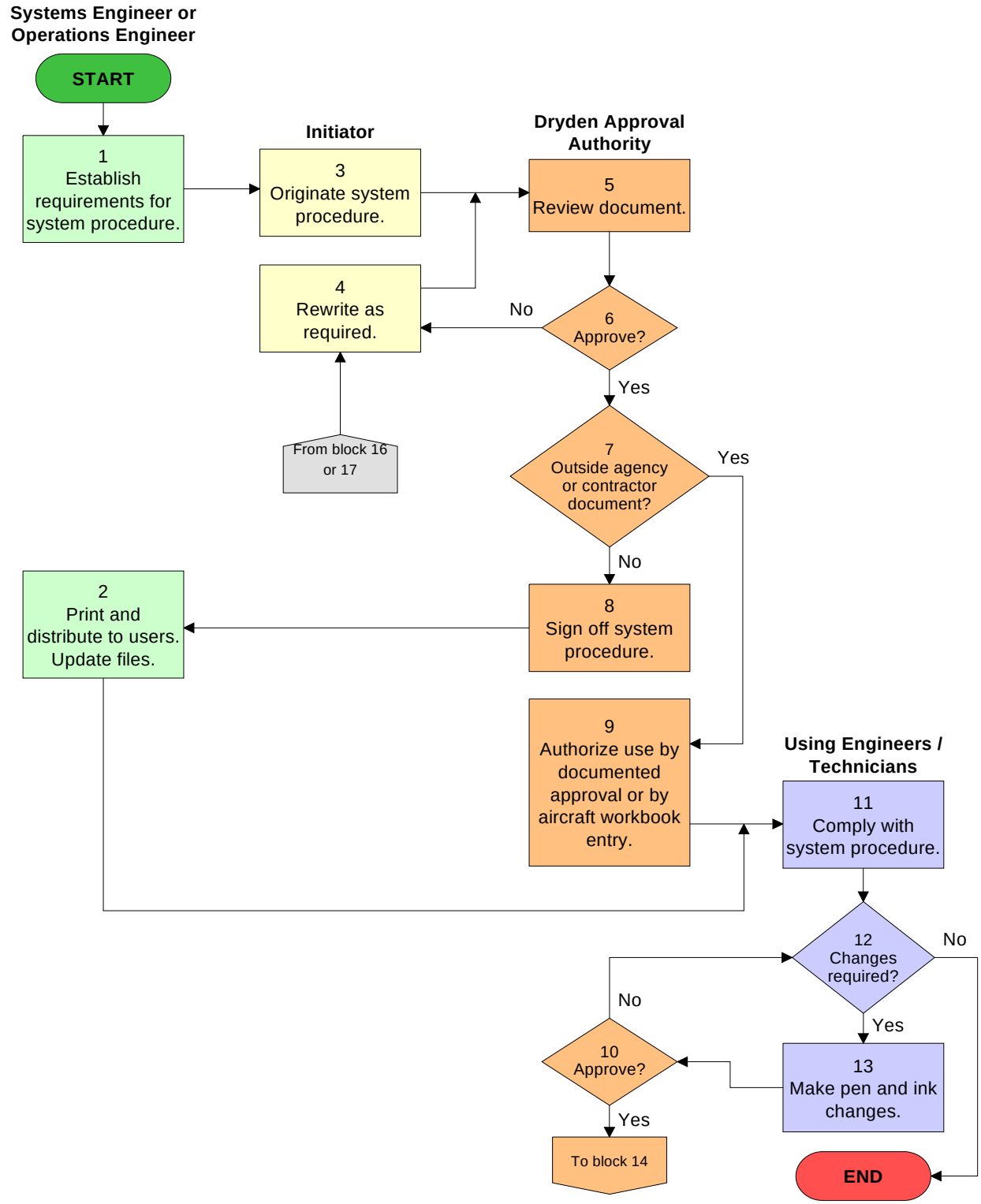
8.1 Acronyms

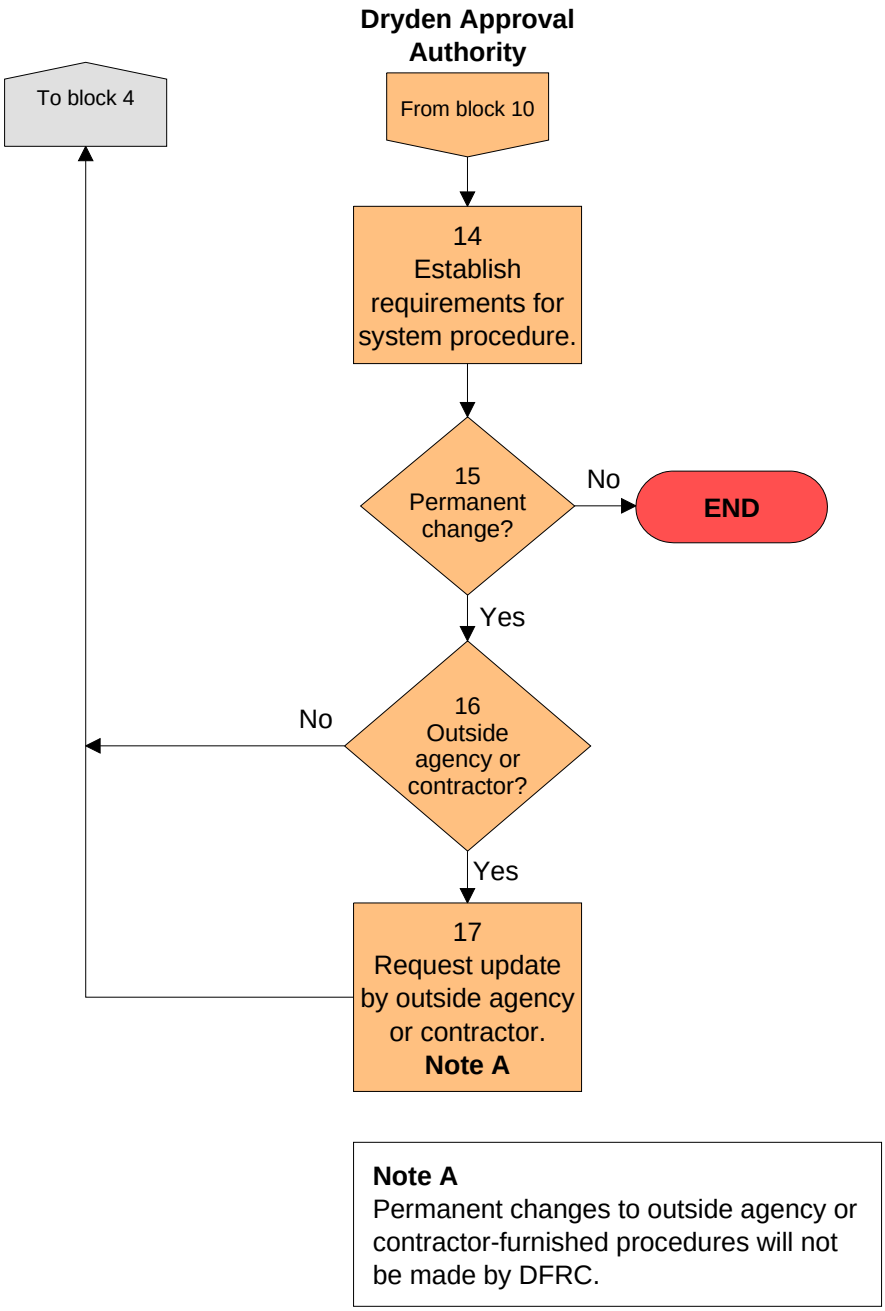
CST	Combined Systems Test
GCS	Ground Control Station
NAMIS	NASA Aircraft Management Information System
RF	Radio Frequency
UAS	Unmanned Aerial System

8.2 Definitions

Systems Test Procedure	A procedure to perform a formal functional test or checkout of a new or modified system.
Unmanned Aerial System	An air vehicle that does not contain aircrew members. Such vehicles may be remotely operated by a pilot from a GCS or other remote ground terminal or operate autonomously from preprogrammed commands.

Appendix A: Aircraft System Test Procedures Preparation & Release Flowchart





Note A
Permanent changes to outside agency or contractor-furnished procedures will not be made by DFRC.

Document History Log
IPP Review Date: 04-13-09

This page is for informational purposes and does not have to be retained with the document.

Status Change	Document Revision	Effective Date	Page	Description of Change
Baseline		02-18-99		
Revision	A	04-14-99	1, 2	Major modifications made to the document
			3	Change title to Aircraft System Test Procedures Preparation & Release Change "Remotely Controlled Vehicles" to "Unmanned Aerial Vehicles (UAV)" in 1.0 PURPOSE and 2.0 SCOPE
			4	Add to 4.6 line 5 after index: "and file" Delete "but in doing so" in 4.8
Revision	B	06-28-99		Page 2: Add to block 1 of Using Engineers/Technicians: (Paragraph 6.0) Page 5: Add paragraph 6.0
Revision	C	01-18-02	4	• Changed under 3.0 (a) any test procedure conducted in control room does not require an inspector or inspection buy off. • Made other grammatical changes as necessary.
Revision	D	10-11-02	5	Removed signature requirement for “Inspection,” Section 5.2
Admin Change	D-1	06-11-08	All	• Added notice stating the need for review and revalidation, revision, or cancellation • Added title page • Added expiration date • Minor format changes
Admin Change	D-2	08-11-08	All	• Extended expiration date • Removed notices citing need for review and revision • Minor formatting changes
Revision	E	05-14-09	All	• Page 2 o Section 1.0: Changed “Unmanned Aerial Vehicles (UAV) and Display Areas” to “Unmanned Aerial Systems (UAS)” o Updated Section 2.0 o Completed Section 3.0 • Page 3 o Added Sections 4.0, 5.0, and 6.0 • Page 4 o Added Section 8.0 • Appendix A • Updated flowchart and moved to appendix